

Appl. No. 10/721,828
Amdt. Dated August 3, 2007
Reply to Office Action of May 3, 2007

Attorney Docket No. 81716.0114
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 2-9 and 12-31 are canceled without prejudice. Claims 1, 10, and 11 are amended. Claims 1, 10, and 11 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. § 112

Claims 1 and 7-11 stand rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. In particular, the Action purports the interplay between “a plurality of concavities” and “a membrane electrode assembly” is not definite. Similarly, the Action also purports the term “the concavity” is not clear because of the recitation of the plurality of concavities. In response, Applicant has amended the claims 1, 10, and 11 to address those issues asserted by the Action. Claims 7 and 8 are canceled, so the § 112 rejection thereto is moot.

Moreover, the Action queries whether “a” bottom surface of one concavity should be “the” bottom surface of one concavity. In response, Applicant has amended the claims to recited “the bottom surface of one of the concavities.”

Furthermore, the Action queries whether the concavity has two principle surfaces. Applicant respectfully refers the Examiner to FIG. 1 of the Applicant’s specification, which illustrates an embodiment of the claimed invention. In that figure, a membrane electrode assembly 13 is disposed in a cavity in base body 16. The membrane electrode assembly 13 has one principle surface having a first electrode 14 thereon, and another principle surface having a second electrode 15 thereon.

Accordingly, the amended claims 1, 10, and 11 thus are believed to comply with the requirement of § 112. Reconsideration and withdrawal of the § 112 are thus respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. § 103

Claims 1 and 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshioka (U.S. Applicant Publication No. 2003/0012999) in view of Bronoel (U.S. Applicant Publication No. 2001/0006745) and Nishida (U.S. Patent No. 5686179); claim 11 stands rejected under the same over Yoshioka in view of Haluzak (U.S. Patent No. 7018734), Bronoel, and Nishida as applied to claim 8, and further in view of Bostaph (U.S. Applicant No. 2003/0031908). Rejection of claims 7-9 are moot because those claims are canceled. For the reasons discussed below, applicant respectfully traverses the rejections of amended independent claims 1, and submits that the rejections should be withdrawn.

The amended independent claim 1 is as follows:

A fuel cell casing comprising:

a base body made of multi-layer ceramics that has a plurality of concavities formed on one surface thereof, each of the cavities accommodating therein a membrane electrode assembly, the membrane electrode assemblies each having, on one principle surface and another principle surface thereof, a first electrode and a second electrode respectively;

first fluid channels each formed so as to extend from a bottom surface of each of the concavities facing one principal surface of the membrane electrode assembly to an outer surface of the base body;

first wiring conductors each having its one end disposed on the bottom surface of each of the concavities facing the first electrode of the membrane electrode assembly, and its another end led to the outer surface of the base body;

a lid body mounted on one surface of the base body near the concavities so as to cover the concavities, for sealing the concavities hermetically;

second fluid channels each formed so as to extend from one surface of the lid body facing the other principal surface of the membrane electrode assembly to an outer surface of the lid body;

second wiring conductors each having its one end disposed on one surface of the lid body facing the second electrode of the membrane

electrode assembly, and its another end led to the outer surface of the lid body; and

a third wiring conductor formed in the base body, the third wiring conductor having its one end opposed to the first electrode of the membrane electrode assembly on the bottom surface of one of the concavities, and its another end opposed to the first electrode of the membrane electrode assembly on the bottom surface of another of the concavities, wherein an internal circuit is formed in the base body.

The applied references do not disclose or suggest “a base body made of multi-layer ceramics” as recited in amended independent claim 1. Moreover, the applied references do not disclose or suggest, “[A]n internal circuit is formed in the base body,” recited in that claim. Accordingly, Applicant respectfully submits the amended independent claim 1 is allowable over the applied references.

Yoshioka is directed to a fuel cell including two generators, a fuel supply portion, and two planar current collectors (*Yoshioka Abstract*). The Action identifies lower housing body **15** as the base body (*Yoshioka FIG. 1A-1G*). The lower housing body **15** has fuel cells including generators **11** and **12**, and hydrogen supply portion **13** disposed therein (*id.*). Yoshioka further recites that the lower housing body **15** may be formed from a metal material such as stainless steel, iron, aluminum, titanium, magnesium, or a resin material such as epoxy resin, ABS resin, polystyrene, PET, polycarbonate, the like. Alternatively, the lower housing body **15** may be made from a composite material such as fiber-reinforced resin or the like. (*Yoshioka at [0087]*). Yoshioka does not disclose or suggest that the lower housing body **15** is made of multi-layer ceramics. Moreover, Yoshioka also does not disclose or suggest that an internal circuit is formed in the lower housing body **15**, as recited in amended independent claim 1.

Haluzak is directed to a method of manufacture miniaturized fuel cell having fuel chambers formed from a substrate, such as a silicon wafer (*Haluzak Abstract*).

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Bronoel is directed to a bipolar collector for a solid polymer electrolyte fuel cell (*Bronoel Abstract*). Nishida a sheet-shaped solid electrolyte in fuel cells (*Nishida Abstract*). Those applied references do not recite structures that can be construed as base body recited in the claims of present application. Accordingly, Haluzak, Bronoel, and Nishida cannot remedy the deficiencies of Yoshioka.

Bostaph is directed to a fuel cell device including a base portion having a major surface (*Bostaph Abstract*). The base portion 14 is typically formed of glass, plastic, silicon, graphite, metal, ceramic, or any other suitable material. (*Bostaph at [0016]*). Bostaph does not disclose or suggest a base body made of multi-layer ceramics, and an internal circuit formed in the base body. Bostaph thus has the same deficiencies as Yoshioka.

In contrast, the claims of present applicant recite a base body made of multi-layer ceramics, and an internal circuit formed in the base body. By forming an internal circuit in the base body, the claimed invention has the advantage of mounting an electronic part electrically connected to the internal circuit on the surface of the base body 76, 76a. Such integration allows for increasing functionalities of the electronic part mounted on the surface of the base body 76, 76a (*Applicant's specification at page 141*). The advantages flowing from the claimed features are not seen in the applied references.

Accordingly, amended independent claim 1 is not rendered unpatentable by the applied references, individually or in combination. Amended independent claim 1 is thus patentable over the applied references, and such allowance is respectfully requested.

Claims 10 and 11 depend from independent claim 1, and are thus allowable at least for the same reasons as those the base claim. Allowance of those claims is also respectively requested.

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CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

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By: 
Dariush G. Adli
Registration No. 51,386
Attorney for Applicant(s)

1999 Avenue of the Stars, Suite 1400
Los Angeles, California 90067
Phone: 310.785.4600
Fax: 310.785.4601